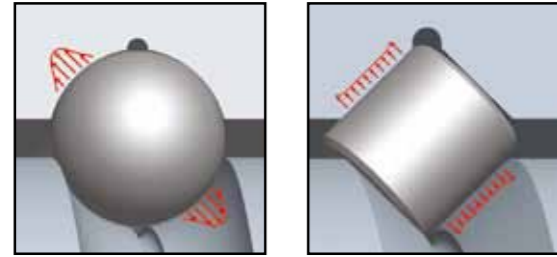
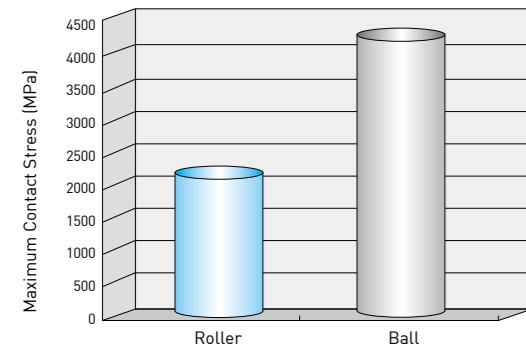


## Technical information of HIWIN ROSCREW

### Theory of the Hertzian contact:

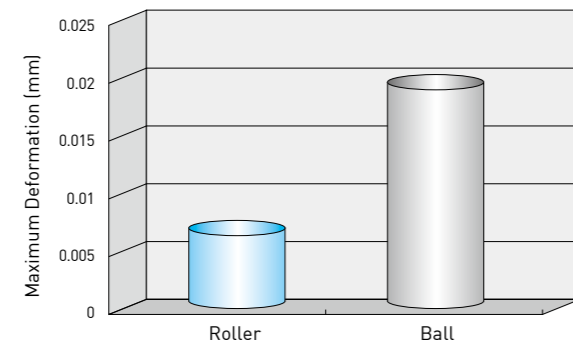


#### ◆ Comparing the Max. contact stress of Roller screw with Ball screw.



In the same external force, the stress of rollers is half than balls, which means the loading of roller screw could be double than normal ball screw.

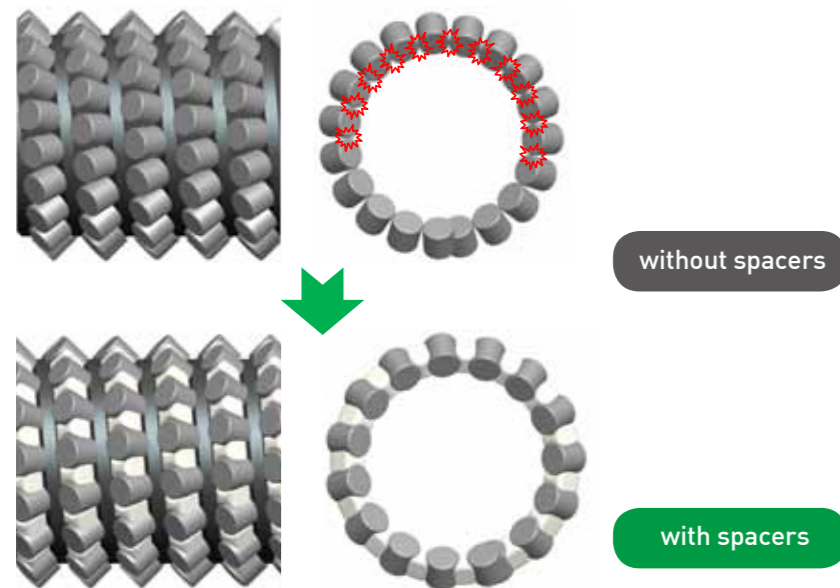
#### ◆ Comparing the Max. deformation of Roller screw with Ball screw.



In the same external force, the maximum amount of deformation of rollers is approximately 1/3 than steel balls, which means the rigidity of roller screw is triple.

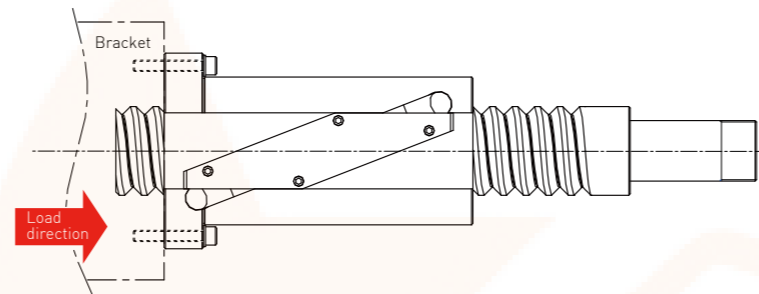
### The design of spacers:

The durability will be decreased because of the contact of roller ends. HIWIN inserts spacers into adjacent rollers to increase the smoothness and the durability.



## Precaution

### The assembling direction of TYPE2 roller screw:



\*Note: The assembling position in this catalogue is depended on the direction of rollers in the nut. If you require other design, please contact with HIWIN.

### The durability of roller screw:

The durability of roller ball screw will be affected by assembly errors, deformation of machine, grease or environmental conditions, which will lead to bias load effect and lubrication problems. It is suggested to do the confirmation after the assembly.

Please avoid the temperature rise because of the conditions of use or environment, which will lower intensity of grease and lead to bad lubrication of roller screw.

If the roller screw is without the wiper, the machining chips and cumulative dust or other foreign bodies will cause the bad smoothness, inaccuracy and reduce life expectancy.

\*Note: If you require spec. suggestion or technical check, please provide the technical data base including machine type, axis, loading, stroke, speed, acceleration, circle time, life expectancy... etc.

### The lubrication of roller screw:

The lubrication is required in the use of roller screws. Greases deteriorate by time so the function of lubrication reduces as well. The leaking grease will cause environmental contamination, therefore regular recheck and supplement are recommended.

#### Regulation of checking and adding grease

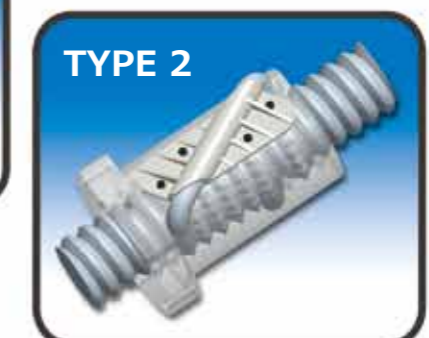
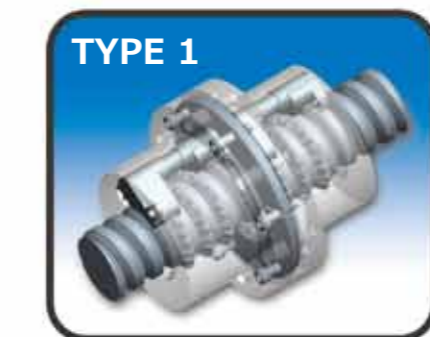
- Please check if there are dirty crumbs mixed in the grease every 2-3 months.
- When the grease is contaminated, please remove the old grease by the new one.
- Please notice the dose should be filled half of the nut in about every 2 months or after 100 km travel.

\*Note: If the more precise dose is required, please provide the data including the spec. of the roller screw, maximum RPM, the nut temperature and the working hours with frequency.



The specifications in this catalog are subject to change without notification.



# ROSCREW Series Roller Screw



### Feature

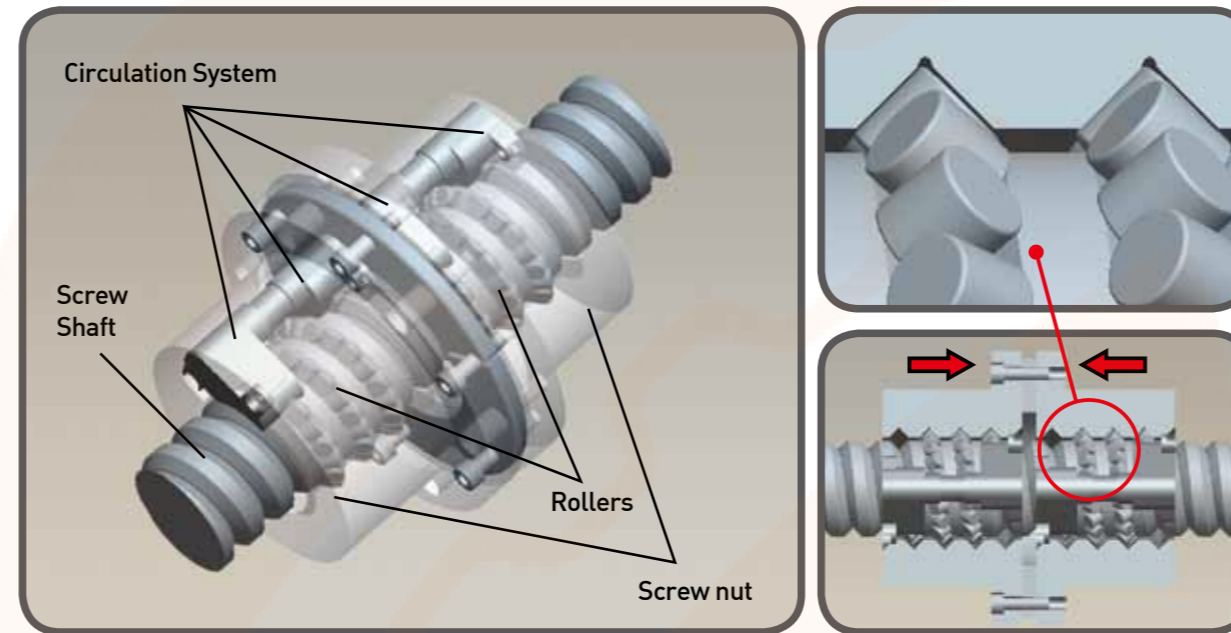
- **High Load Capacity**  
About 1.5~2 times load capacity than general ball screw.
- **Long Service Life**  
About 1.5~2 times service life than general ball screw.
- **High Stiffness**  
About 1.5~2 times stiffness than general ball screw.

# HIWIN ROSCREW Series

ITEM		TYPE1 Crossed Type		TYPE2 Thrust Load Type
Max. DN value	Max. 70,000 (DN Value= Screw OD x speed)			
Accuracy grade	Standard roller screw available in JIS B 1192 Grade C3		Standard roller screw available in JIS B 1192 Grade C7	
Preload	≤ 2% of dynamic load		---	
Backlash	0		≤ 0.05mm (Standard)	
Load direction	Two-way axial load		One-way axial load	
Max. working temperature	Max. 70°C (The temperature of nut diameter)			
Axis end	One axial end diameter of the screw shaft must be smaller than the root diameter or run through thread			
Service Life Calculation Formulas	Roller Screw: $L_{RS} = \left(\frac{C}{F_{bm}}\right)^{\frac{10}{3}} \times 10^6$		$L_{RS}$ : Service life in running revolution(s)(rev)	
	Roller Screw: $L_{RS,h} = \frac{L_{RS}}{60 \times n_{av}}$		$L_{RS,h}$ : Service life in hour(s)(hr)	
	Roller Screw: $L_{RS,d} = \frac{L_{RS} \times l}{10^6}$		$L_{RS,d}$ : Service life in working distance(km)	
	Ball Screw: $L_{BS} = \left(\frac{C}{F_{bm}}\right)^3 \times 10^6$			
	$C$ : Basic dynamic load(kgf)		$F_{bm}$ : Mean axial load(kgf)	
	$n_{av}$ : Mean speed(rpm)			
	$l$ : Lead(mm)			

\*In the same dynamic load and axial load the service life of roller screw are 1.5 times longer than normal ball screws. (hypothetically F=0.3\*C)

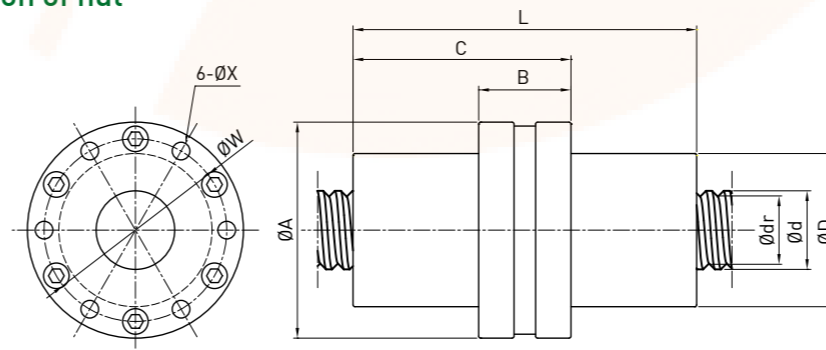
# ROSCREW TYPE 1



Specifaion	Diameter	Lead	Root Diameter	Roller Diameter	Circuits	Dynamic load [kN]	Static load [kN]	Allowable axial load [kN]
32-10K6	32	10	25.846	5	6	90 [65]	504 [171]	30
40-10K6	40	10	33.846	5	6	100 [73]	631 [217]	33.3
50-10K6	50	10	43.846	5	6	112 [81]	809 [275]	37.3

\*Remark:The numbers in brackets are the Dynamic load & Static load of ballscrew.

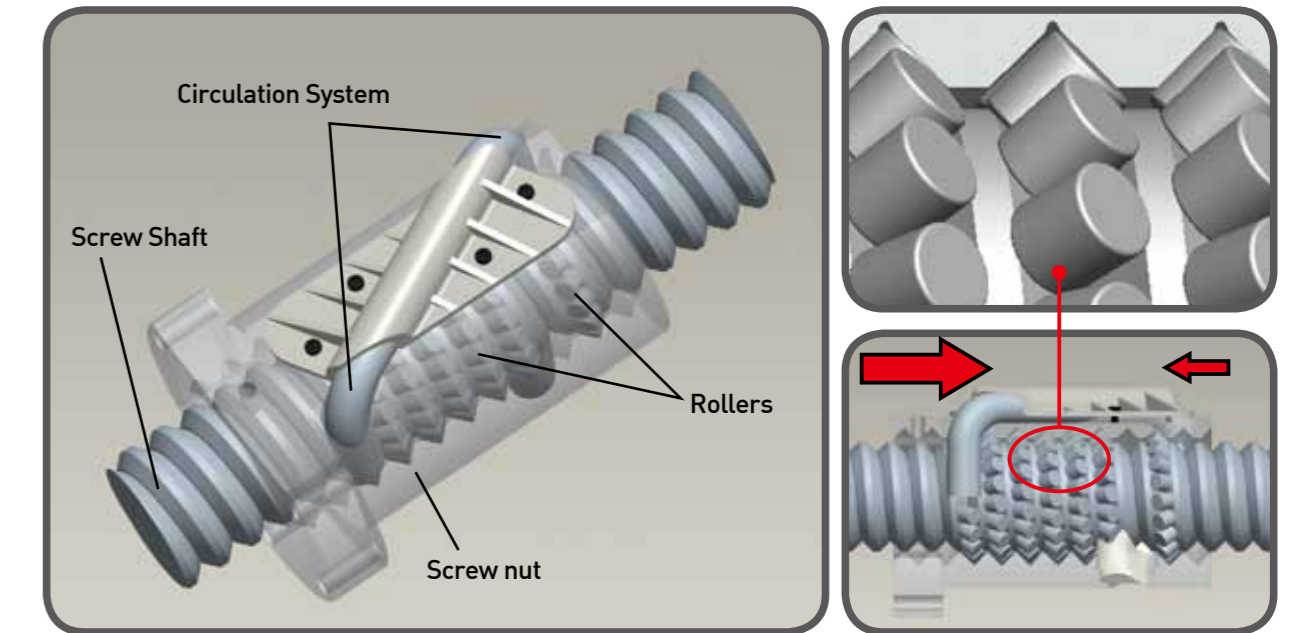
## TYPE1 Dimension of nut



Specifaion	Dimension of nut							
	D	A	B	C	L	W	X	
32-10K6	67	110	47	111	183	85	9	
40-10K6	75	120	47	111	183	93	9	
50-10K6	85	130	47	111	183	112	9	

\*Remark:Above specifications are only for trial order.

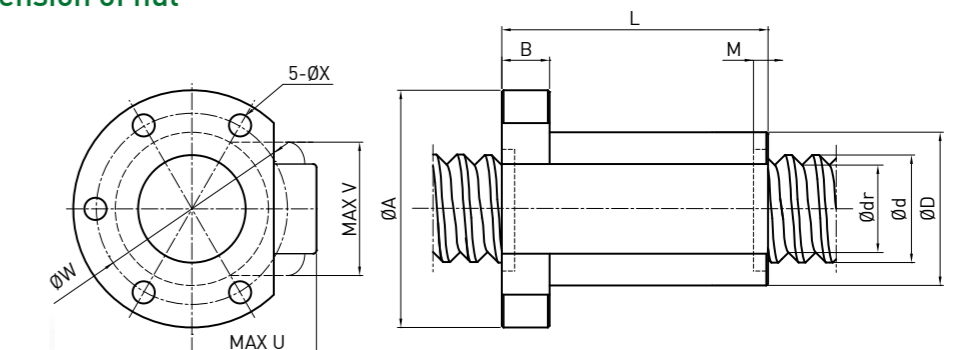
# ROSCREW TYPE 2



Specifaion	Diameter	Lead	Root Diameter	Roller Diameter	Circuits	Dynamic load [kN]	Static load [kN]	Allowable axial load [kN]
63-16K8+K2	63	16	50.35	10	8/2	401/122 [381]	2692/673 [1266]	133.7

\*Remark:The numbers in brackets are the Dynamic load & Static load of ballscrew.

## TYPE2 Dimension of nut



Specifaion	Dimension of nut								
	D	A	B	L	W	X	MAX U	MAX V	
63-16K8+K2	105	156	28	236	138	11	68	86	

\*Remark:Above specifications are only for trial order.